November 8, 2001

MEMORANDUM TO: William H. Bateman, Chief
Materials and Chemical Engineering Branch
Division of Engineering

FROM: Edmund J. Sullivan, Acting Chief ***/ra/***
Component Integrity and Chemical Engineering Section
Materials and Chemical Engineering Branch

SUBJECT: SUMMARY OF A PHONE CALL BETWEEN NRC STAFF AND NEI ON SEPTEMBER 25, 2001, TO DISCUSS STAFF COMMENTS ON STEAM GENERATOR INSPECTION INTERVALS

This phone call was held as a followup to the staff's September 18, 2001, memorandum (ML012610664) on the subject of steam generator inspection intervals. NRC participants in the call were Edmund Sullivan, Emmett Murphy, and Maitri Banerjee. The principal NEI/industry participants were Jim Riley, Scott Redner and John Smith.

John Smith, Chairman of the non-destructive examination (NDE) industry review group, tasked with developing Revision 6 of the EPRI NDE Guidelines, discussed the status of resolution of comments from the NRC and the industry. At the last week's industry ad hoc committee meeting many of the industry comments were resolved, and he expected to complete comment resolution during their next meeting on October 9 thru 11, 2001. They have also scheduled an October 25, 2001, meeting with the NDE vendors to discuss data quality. Because of the ongoing fall outages, the next meeting to resolve NRC comments can not be scheduled before early January 2002. The staff expressed concern with the schedule and stated that it may not be necessary to complete the work on Rev. 6 to achieve success on overall NEI 97-06 initiative, although a rationale for extending the inspection interval needs to be incorporated in the generic change package.

Upon industry's question the staff explained that comments and preliminary conclusions in the NRR/EMCB memo of September 18, 2001, a copy of which was provided to the stakeholders including NEI, apply to Section 3 of the EPRI Examination guidelines only, and not to the performance-based approach in Section 4, as more fundamental issues need to be resolved before the staff would be ready to address a fully performance-based approach. During the rest of the phone call the staff addressed questions industry representatives asked to help clarify the intent of the staff's September 18 memo; the following paragraph numbers correspond to the numbers under section 4 of the memo titled "Preliminary Conclusions."

1. The staff clarified that the purpose of conclusion 1 was to address the future possibility of fuel cycles longer than 22 effective full power months (EFPMs), for example if some licensee comes up with a long lived core of 26 to 28 EFPMs.

CONTACT: M. Banerjee, DLPM/LPD-3
301 415-2277

2. Industry representatives stated that the staff's proposal to apply the 10% flaw growth criterion to each inspection interval rather than each fuel cycle was more restrictive than necessary. For example, anti-vibration bar (AVB) wear flaws exhibiting modest growth rates of 4% per cycle would not meet this criterion. The industry representatives felt that such AVB wear rates, alone, should not negate the possibility of multi-cycle inspection intervals. The staff responded that it would consider this comment and that perhaps some adjustment to this criterion might be appropriate for multi-cycle intervals.

   The staff pointed out the need to incorporate a one cycle confirmatory inspection to ensure the cause of loose part damage has indeed been removed and no progressive damage has been going on, before removing active degradation restrictions.

3. Regarding staff conclusion no. 3 (alloy 690 TT plants should implement a two cycle inspection interval before initiating three cycle inspections), staff clarified that it considered a grandfather clause to be appropriate for plants already implementing three cycles inspection intervals in accordance with the existing technical specifications.

4. Regarding use of foreign operating experience in degradation assessments, both the industry and NRC agreed that details including applicability need to be clarified in the guideline and further discussion may be warranted. The industry found the staff conclusion that indications exhibiting crack like characteristics be considered as active degradation to be too restrictive as it did not allow the possibility that the cause of cracking in the lead plant may not be applicable to the followers. The staff agreed that flexibility was needed to address these types of details. Further discussion on "time to detectable cracking" and types of inspection (when to start using rotating pancake probe) to be used for early plant life did not produce agreement. There continues to be debate among industry representatives on these topics. Needed guideline changes on these topics are currently being discussed at the industry group level.

5. Industry representatives state that a consensus definition of "burst" has already been agreed to between the staff and industry as documented in NEI 97-06 Rev 1D and an industry white paper. The staff agrees that there is a consensus on the definition. However, the staff noted that it has not endorsed the industry white paper which, in part, discusses how the definition is to be interpreted. The staff does agree that, in general, the definition of burst does not encompass localized perforations of the tube wall such as the "ligament pop-through" example cited in the white paper for a ½- inch long, deep crack. However, the staff believes the interpretation must be consistent with the principle that application of the performance criteria ensures an acceptable level of risk. It is not clear to the staff that a 0.3-inch square AVB wear scar is sufficiently localized to ensure acceptable consequences should a 0.3-inch square perforation (hole) occur under severe accident conditions. The potential risk implications should be considered if one is not going to ensure a margin of three against blowing out a 0.3-inch square hole.

6. Upon industry questions, the staff provided further clarification of their position that extended inspection intervals for improved materials need to be preceded and followed by inspections that utilize qualified techniques for all potential degradation mechanisms and locations. The staff invited the industry for a specific proposal if they wanted to deviate from Revision 5 recommendations in this regard.

7. The staff clarified the term “compelling evidence” that needs to be established before deciding that an indication is actually associated with manufacturing, geometry variation or other inspection artifacts (i.e., not a service-induced flaw). The industry was concerned that one utility’s overly conservative call may impact other licensees. The staff stated that detailed guidance in this area, perhaps involving an industry protocol for review of such indications by a panel of experts, may be helpful.

8. Regarding staff comment that a threshold (5 gpd) for primary to secondary leakage prior to shutdown for a refueling outage be established to trigger a SG inspection (if none planned), the industry indicated their difficulty in establishing such a number. One proposal was that the number may be a relative one compared to the previous cycle leak rate. The industry was asked to make a proposal.

Regarding the staff requested information, staff clarified that they need to better understand the current experience in the area of tube cracking of the improved material, including foreign experience. The staff asked the industry to formally submit the proposal presented at the August 29, 2001 meeting after incorporation of staff comments. Industry did not make any commitments regarding the timing of responding to the staff’s comments on the inspection interval issue.

7. The staff clarified the term “compelling evidence” that needs to be established before deciding that an indication is actually associated with manufacturing, geometry variation or other inspection artifacts (i.e., not a service-induced flaw). The industry was concerned that one utility’s overly conservative call may impact other licensees. The staff stated that detailed guidance in this area, perhaps involving an industry protocol for review of such indications by a panel of experts, may be helpful.

8. Regarding staff comment that a threshold (5 gpd) for primary to secondary leakage prior to shutdown for a refueling outage be established to trigger a SG inspection (if none planned), the industry indicated their difficulty in establishing such a number. One proposal was that the number may be a relative one compared to the previous cycle leak rate. The industry was asked to make a proposal.

Regarding the staff requested information, staff clarified that they need to better understand the current experience in the area of tube cracking of the improved material, including foreign experience. The staff asked the industry to formally submit the proposal presented at the August 29, 2001 meeting after incorporation of staff comments. Industry did not make any commitments regarding the timing of responding to the staff’s comments on the inspection interval issue.

Distribution: SG Service List JStrosnider FEltawila EMCB RF

DOCUMENT NAME: G:\EMCB\Sullivan\NEIphonecall-92501
INDICATE IN BOX: “C”=COPY W/O ATTACHMENT/ENCLOSURE, “E”=COPY W/ATT/ENCL, “N”=NO COPY

OFFICE	EMCB:DE	
NAME	EJSullivan	
DATE	11 / 08 /01	

OFFICIAL RECORD COPY